

REMARKS / ARGUMENTS

Claims 1-40 are pending in the instant application. Claims 1, 21 and 32 are independent. Claims 2-20, 22-31 and 32-40 depend directly or indirectly from independent claims 1, 21, and 32, respectively. Claims 1-7, 11, 14-22, 24, 26-28, 32-34, 36-37 and 39-40 have been amended to clarify the claim language to further prosecution. The Applicant points out that the amendments to the claims are supported at least by Figs. 1-4, 6-8 and 10-12, and related descriptions, such as paragraphs [03-06], [09-12], [14-16], and [37-40] in the specification.

Claims 1-10, 14-20, 24-31 are rejected under 35 U.S.C. § 102(b) as being anticipated by Yoshida (U.S. 3,742,149, hereinafter Yoshida).

Claims 11-13, 22-23 and 32-40 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshida, in view of Cairns (US 5,794,131, hereinafter Cairns).

The Applicant respectfully traverses these rejections at least based on the following remarks.

REJECTION UNDER 35 U.S.C. § 102

With regard to the anticipation rejections under 102, MPEP 2131 states that:

"[a] claim is anticipated only if **each and every element** as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." See MPEP at 2131 (internal citation omitted). Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." See *id.* (internal citation omitted).

I. Yoshida Does Not Anticipate Claims 1-10, 14-20, 24-31

The Applicant turns to the rejection of claims 1-10, 14-20, 24-31 under 35 U.S.C. § 102(b) as being anticipated by Yoshida.

A. Independent Claims 1 and 21

With regard to the rejection of independent claim 1 under 35 U.S.C. § 102(b), the Applicant submits that Yoshida does not disclose or suggest at least the limitation of "generating, in a transmitter, a local oscillator (LO) signal at a particular frequency, ... associated with a LO harmonic frequency disposed at a LO harmonic frequency,...and attenuating, in said transmitter, said selected frequency content disposed in said region around the LO harmonic frequency," as recited in Applicant's claim 1. In the Final Office Action, the Examiner relies on Yoshida and states the following:

“Yoshida teaches generating in a transmitter a signal at a particular frequency the signal being associated with a harmonic frequency signal disposed at a harmonic frequency (Fig. 1, abstract, col.1, lines 5-53)”

See the Final Office Action at page 3. The Examiner relies for support on Yoshida in Fig. 1 and col. 1, lines 5-53 to disclose attenuation of high level cross modulation components (i.e., harmonic components of the modulated carrier waves) in a microwave communication system. Specifically, the Examiner equates the modulated carrier waves (i.e., produced by modulating VHF/UHF channel signals audio or TV signals with a microwave source 13) to the claimed “**generating, in a transmitter, a local oscillator (LO) signal at a particular frequency**”, the high level cross modulation components (i.e., harmonic components of the modulated carrier waves) to the claimed “**the LO signal being associated with a LO harmonic frequency signal**”. Likewise, the Examiner equates Yoshida’s disclosure of attenuating the cross modulation components (i.e., harmonic components of the modulated carrier waves) to the claimed “**attenuating, in said transmitter, said selected frequency content disposed in said region around the LO harmonic frequency**”.

The Applicant respectfully disagrees and points out that Yoshida does not disclose the claimed “**generating, in a transmitter, a local oscillator (LO) signal at a particular frequency**”. Specifically, the Examiner is referred to Yoshida in the following citation:

"Referring to FIGS. 1 and 2, at SSB modulators 1, 2, and 6, six television signals are caused to modulate a microwave source 13. The SSB modulated carrier waves from the modulators 1, 3 and 5 are caused to pass through band-pass filters 7, 9 and 11, respectively, ..."

See Yoshida at col. 1, lines 63-68. Yoshida in Fig. 1 discloses that the generated signals in the transmitter, are **the modulated carrier waves**, which are formed by **modulating the VHF/UHF TV channel signals with a microwave source 13**. In this regard, Yoshida **does not** disclose "generating, in a transmitter, a **local oscillator (LO) signal** at a particular frequency,... **associated with a LO harmonic frequency** disposed at a LO harmonic frequency," as recited by the Applicant in claim 1.

In addition, Yoshida discloses using the band-pass filters (i.e., notch cavity) to attenuate the **high level cross modulation components, which are the harmonic of the modulated carrier waves**. In this regard, the band-pass filters do not attenuate the claimed "selected frequency content disposed in said region around the **LO harmonic frequency**".

Therefore, the Applicant maintains that Yoshida does not disclose or suggest "**generating, in a transmitter, a local oscillator (LO) signal** at a particular frequency, ... **associated with a LO harmonic frequency signal disposed at a LO harmonic frequency**, and **attenuating, in said transmitter,**

said **selected frequency content disposed in said region around the LO harmonic frequency**," as recited in Applicant's claim 1.

Furthermore, the Applicant points out that Yoshida does not disclose that the purpose of filtering the high level cross modulation components is for "reducing **phase noise**".¹ Even though the Examiner argues in the Final Office Action that "reducing phase noise" is recited only in the preamble, nevertheless, the Applicant points out that "the preamble recites the purpose or intended use", and to be determined on a case by case basis in light of the facts in each case (see MPEP § 2111.02-II).¹ In this regard, the Yoshida reference has an intended use which is outside the scope of the claim. Specifically, the Examiner is referred to the following citation of Yoshida:

"The cross modulation, caused by the **non-linear distortion at the amplitude modulation and the power amplifier in the transmitter and at the amplitude demodulator in the receiver**, causes disturbances and noises to other transmission channels. Therefore, high level cross modulation components must be attenuated."

See Yoshida at col. 1, lines 18-22. Yoshida discloses that the attenuation of the high level cross modulation components (i.e., the harmonics of modulated carrier waves) is for "**reducing amplitude and phase distortion in the power amplifier** of the transmitter and receiver in the transmitted channels", which is not intended as "a method for **reducing phase noise**".

Based on the foregoing rationale, the Applicant maintains that Yoshida at least does not disclose or suggest the limitation "generating, in a transmitter, a Local Oscillator (LO) signal at a particular frequency, ... associated with a LO harmonic frequency signal disposed at a LO harmonic frequency,...and attenuating, in said transmitter, said selected frequency content disposed in said region around the LO harmonic frequency," as recited in the Applicant's claim 1.

Therefore, the Applicant submits that independent claim 1 is not anticipated by Yoshida and should be allowable. The Applicant respectfully requests that the rejection of independent claim 1 under 35 U.S.C. § 102(b) be withdrawn. Independent claim 21 is similar in many respects to independent claim 1. Therefore, the Applicant respectfully submits that claim 21 is also allowable at least for the reason stated above with regard to claim 1, and respectfully requests that the rejection of claim 21 under 35 U.S.C. § 102(b) be withdrawn.

B. Dependent Claims 2-10, 14-20 and 24-31

Dependent claims 2-10, 14-20 and 24-31 depend directly or indirectly from independent claims 1 and 21, respectively. Consequently, claims 2-10, 14-20 and 24-31 are submitted to be allowable at least for the reasons stated above with regard to claim 1. The Applicant respectfully requests that the rejection of claims 2-10, 14-20 and 24-31 under 35 U.S.C. § 102(b) be withdrawn.

Regarding the rejection of claim 2, the Examiner is referred to the argument of claim 1, that the generated signal is a LO signal, not a modulated carrier signal (formed by modulating the channel signals with the microwave LO oscillator 13). Therefore, the Applicant maintains that Yoshida does not disclose the claimed "selectively attenuating frequency content disposed in a second region around the **second LO harmonic frequency**," and claim 2 is submitted to be allowable.

Regarding the rejection of claim 4, the Examiner is referred to the argument of claim 1, that the generated signal is a LO signal, not a modulated carrier signal (formed by modulating the channel signals with the microwave LO oscillator 13). Therefore, the Applicant maintains that Yoshida does not disclose the claimed "applying at least one non-linear operation to the **LO** signal comprises **dividing the LO signal**," and claim 4 is submitted to be allowable.

Regarding the rejection of claim 5, the Examiner is referred to Yoshida in Fig. 1, which discloses that the microwave oscillator 13 (i.e., the alleged LO) is mixed with the channel TV signals (not a reference signal). Therefore, the Applicant maintains that Yoshida does not disclose the claimed "mixing the **LO** signal **with a reference signal**," and claim 5 is submitted to be allowable.

Regarding the rejection of claim 6, the Examiner is referred to the argument of claim 1, that the generated signal is a LO signal, not a modulated

carrier signal (formed by modulating the channel signals with the microwave LO oscillator 13). Therefore, the Applicant maintains that Yoshida does not disclose the claimed "amplifying the LO signal," and claim 6 is submitted to be allowable.

Regarding the rejection of claim 15, the Examiner is referred to the argument of claim 1, that the generated signal is a LO signal, not a modulated carrier signal (formed by modulating the channel signals with the microwave LO oscillator 13). Therefore, the Applicant maintains that Yoshida does not disclose the claimed "the LO signal comprises a quadrature signal," and claim 15 is submitted to be allowable.

Regarding the rejection of claim 16, the Examiner is referred to the argument of claim 1, that the generated signal is a LO signal, not a modulated carrier signal (formed by modulating the channel signals with the microwave LO oscillator 13). Therefore, the Applicant maintains that Yoshida does not disclose the claimed "the selective attenuating comprises canceling frequency content disposed in the region around the LO harmonic frequency," and claim 16 is submitted to be allowable. Claim 17 is also submitted to be allowable for the same reason of claim 16.

Claims 18-21 and 24-31 are also submitted to be allowable for the same arguments stated in claim 1 and in the above dependent claims.

The Applicant reserves the right to argue additional reasons beyond those set forth herein to support the allowability of dependent claims 1-10, 14-21 and 24-31 should such a need arise.

REJECTION UNDER 35 U.S.C. § 103

In order for a *prima facie* case of obviousness to be established, the Manual of Patent Examining Procedure, Rev. 6, Sep. 2007 ("MPEP") states the following:

The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007) noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Federal Circuit has stated that "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness."

See the MPEP at § 2142, citing *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), and *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d at 1396 (quoting Federal Circuit statement with approval). Further, MPEP § 2143.01 states that "the mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art" (citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007)). Additionally, if a

prima facie case of obviousness is not established, the Applicant is under no obligation to submit evidence of nonobviousness:

The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness.

See MPEP at § 2142.

II. The Proposed Combination of Yoshida and Cairns Does Not Render Claims 11-13, 22-23 and 32-40 Unpatentable

The Applicant now turns to the rejection of claims 11-13, 22-23 and 32-40 as being unpatentable over Yoshida in view of Cairns.

A. Rejection of Dependent Claims 11-13 and 22-23

Based on at least the foregoing, the Applicant believes the rejection of independent claims 1 and 21 under 35 U.S.C. § 102(b) as being anticipated by Yoshida has been overcome and request that the rejection be withdrawn. Cairns does not overcome the deficiencies of Yoshida. Additionally, claims 11-13 and 22-23 depend directly or indirectly from independent claims 1 and 21, respectively, and are, consequently, also respectfully submitted to be allowable.

The Applicant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 11-13 and 22-23.

B. Independent Claim 32

With regard to the rejection of independent claim 32 under 35 U.S.C. § 103(a), the Final Office Action at page 8 states the following:

“Yoshida fails to teach a buffer that buffers the signal, the buffer adapted to select frequency content disposed in a region around the harmonic frequency and attenuate said selected frequency content disposed in said region round the harmonic frequency”

The Examiner relies on Cairns (See col.4, lines 1-36, Fig.3) to disclose Yoshida's deficiencies. The Applicant refers the Examiner to the arguments in claim 1, namely, that Yoshida does not disclose generating a LO signal, consequently the attenuation of the frequency content is not at “LO harmonic frequency”. Cairns does not overcome the deficiencies of Yoshida. Claim 32 is submitted to be allowable, and the Applicant respectfully requests that the rejection of claim 32 under 35 U.S.C. § 103(a) be withdrawn.

C. Rejection of Dependent Claims 33-40

Based on at least the foregoing, the Applicant believes the rejection of independent claims 32 under 35 U.S.C. § 103(a) as being unpatentable by Yoshida in view of Cairns has been overcome and request that the rejection be withdrawn. Additionally, claims 33-40 depend directly or indirectly from independent claim 32, respectively, and are, consequently, also respectfully submitted to be allowable.

The Applicant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 32-40.

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CONCLUSION

Based on at least the foregoing, the Applicant believes that all claims 1-40 are in condition for allowance. If the Examiner disagrees, the Applicant respectfully requests a telephone interview, and requests that the Examiner telephone the undersigned Patent Agent at (312) 775-8093.

The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to the deposit account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

A Notice of Allowability is courteously solicited.

Respectfully submitted,

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